Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services

STATEMENT OF BASIS

Calumet Shreveport Refinery
Calumet Shreveport Lubricants and Waxes, LLC
Shreveport, Caddo Parish, Louisiana
Agency Interest Number: 1214
Activity Number: PER20060004
Draft Permit 0500-00005-V1

I. APPLICANT:

Company:
Calumet Shreveport Lubricants and Waxes, LLC
P. O. Box 3099
Shreveport, LA 71033

Facility:
Calumet Shreveport Refinery
3333 Midway Street
Shreveport, LA 71109
Approximate UTM coordinates are 425.20 kilometers East and 3592.40 kilometers North, Zone 15
SIC Code: 2911

II. FACILITY AND CURRENT PERMIT STATUS:

Calumet refines crude oil by the use of distillation, hydrofinishing, dewaxing/desulfurization, hydrogenation, solvent extraction, hydrotreating, propane deasphalting, and MEK dewaxing. Calumet also operates necessary equipment for required utilities such as cooling towers and boilers. Feedstocks and finished products are stored in pressure tanks, floating roof tanks, cone roof tanks, and gas blanketed tanks. Pipelines, tanker trucks, and rail cars are used to receive raw materials, and pipelines, trucks and rail cars are used to deliver finished products to customers.

The facility submitted timely applications for initial Part 70 permits and continues to operate pursuant to the "application shield" provided in the program.

In addition, the facility has a state permit that will remain effective until replaced by a Part 70 permit. This include:

Permit #	Units or Sources	Date Issued
	None	

Calumet Shreveport Refinery
Calumet Shreveport Lubricants and Waxes, LLC
Shreveport, Caddo Parish, Louisiana
Agency Interest Number: 1214
Activity Number: PER20060004
Draft Permit 0500-00005-V1

Several Part 70 permits addressing portions of the facility have already been issued. This include:

Permit #	Units or Sources	Date Issued
0500-00005-V0	Entire Facility	12/16/2005

Several PSD permits addressing portions of the facility have already been issued. This include:

Permit #	Units or Sources	Date Issued
	None	

Finally, several applications for initial Part 70 permits addressing the remaining portions of the facility are still under review by the department. This include:

Permit #	Units or Sources
	None

III. PROPOSED PERMIT / PROJECT INFORMATION:

Proposed Permit

A permit application and Emission Inventory Questionnaire was submitted by Calumet Lubricants Company on July 31, 2006, requesting a Part 70 operating permit modification.

Project Description

The proposed modifications of the facility are as follows:

1. Increase total refinery production from 38,000 to 65,000 barrels per day;
2. Replace No. 4 Crude Unit Prefract Charge Heater (Emission Point III-g);
3. Add a diesel HT 92-H-100 Reactor Charge Heater (33 MM BTU/hr), a diesel 92-H-101 Stripper Reboiler Heater (32 MM BTU/hr), a Sour Crude Heater 93-H-200 (56 MM BTU/hr), a No. 1 Platformer Heater-2006 (3 MM BTU/hr), a No. 2 Platformer Heater-2006 (3 MM BTU/hr), a DDD

Heater-2006 (9.69 MM BTU/hr), a Hydrogen Plant Heater-2006 (66 MM BTU/hr), and a Sour Crude Vac Heater 37-N-1 (37 MM BTU/hr);

4. Replace the No. 7 Steam Boiler (EQT31) with the No. 9 Steam Boiler (47.1 MM BTU/hr);
5. Fugitive emissions will change to address additional components associated with the new equipment;
6. Tank throughputs and associated emissions will change as a result of the increase of refinery capacity to 65,000 barrels per day;
7. Remove tank caps crude cap, distillates cap, fuel oil cap, gasoline cap, and intermediate gasoline cap;
8. Delete Emission Points Crude Unit Distillation Heater No. 1 Vacuum Tower (EQT026), Raffinate Furnace – NMP Unit (EQT030), Hydrogen Reformer Auxiliary Burner (EQT200), Sulfur Recovery Plant Incinerator (EQT201), and DDD Light Diesel Heater (EQT205);
9. Add emission points that were previously omitted from the permit (Additive Tanks Nos. T-202 and T-2009, Wax Tank No. T-3001, Wastewater Tanks T-79, T-201, and T-2001);
10. Add a Belco Thermal Oxidizer which replaces the Sulfur Recovery Plant Incinerator (EQT201); and
11. Correct the service of several tanks.

Tank No.	Previously Designated Service	Corrected Service
T-56	Gasoline	Diesel
T-53	Gasoline	Diesel
T-54	Gasoline	Diesel
T-107	Wax	Heavy Oil
T-108	Wax	Heavy Oil
T-109	Wax	Heavy Oil
T-177	Additive	Heavy Oil
T-178	Additive	Heavy Oil
T-179	Additive	Heavy Oil
T-29	Crude Oil	Diesel
T-32	Distillate	Intermediate Gasoline
T-57	Crude Oil	Intermediate Gasoline
T-58	Crude Oil	Intermediate Gasoline
T-182	Crude Oil	Intermediate Gasoline

Calumet Shreveport Refinery
Calumet Shreveport Lubricants and Waxes, LLC
Shreveport, Caddo Parish, Louisiana
Agency Interest Number: 1214
Activity Number: PER20060004
Draft Permit 0500-00005-V1

Permitted Air Emissions

Estimated emissions in tons per year are as follows:

Pollutant	Before	After	Change
PM_{10}	67.61	73.76	+ 6.15
SO_2	107.63	146.86	+ 39.23
NO_X	410.49	433.52	+ 23.03
CO	403.27	470.67	+ 67.40
VOC*	935.21	747.88	- 187.33

** Permitted VOC emissions decreased mainly as a result of two changes: (1) Fugitive emission source FU-VOC was reduced as a result of a decrease in permitted components. The previous permit (before) was based on a facility-wide component count that included units no longer in service and a 10% expansion buffer. The current permit (after) includes only active units and only a 5% expansion buffer. (2) Tank caps were removed from the crude tanks, distillate tanks, fuel oil tanks, gasoline tanks, and intermediate gasoline tanks. The tank caps were removed because they resulted in an overestimation of emissions for each group of tanks.

*VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

Pollutant	Before	After	Change
1,3-Butadiene	0.01	0.01	-
1,2,4-Trimethylbenzene	0.39	0.16	- 0.23
2,2,4-Trimethylpentane	1.87	1.50	- 0.37
Acetaldehyde	0.001	0.001	-
Acrolein	0.0003	0.001	+ 0.0007
Aniline	0.02	0.02	-
Benzene	2.20	2.01	- 0.19
Biphenyl	0.01	0.004	- 0.006
Carbon Disulfide	0.17	0.17	-
Cresols	0.02	-	- 0.02
Cumene	0.09	0.04	- 0.05
Dichlorobenzene	0.01	-	- 0.01
Ethylbenzene	4.09	3.67	- 0.42
Formaldehyde	0.40	0.44	+ 0.04
Methanol	0.14	0.11	- 0.03
Methyl Ethyl Ketone	18.75	15.11	- 3.64

Calumet Shreveport Refinery
Calumet Shreveport Lubricants and Waxes, LLC
Shreveport, Caddo Parish, Louisiana
Agency Interest Number: 1214
Activity Number: PER20060004
Draft Permit 0500-00005-V1

*VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

Pollutant	Before	After	Change
Naphthalene	0.95	0.76	- 0.19
n-Hexane	22.32	22.70	+ 0.38
Phenol	0.05	0.02	- 0.03
PolyAromatic Hydrocarbons	0.0003	0.0003	-
Styrene	0.01	0.004	- 0.006
Toluene	28.29	23.84	- 4.45
Xylene	3.12	2.46	- 0.66
Total	82.91	73.03	-9.88

Other VOC (TPY):

Pollutant	Before	After	Change
Barium	0.03	0.03	-
Cadmium	0.01	0.01	-
Chromium	0.01	0.01	-
Hydrogen chloride	0.02	0.02	-
Hydrogen Sulfide	1.58	0.53	- 1.05
Nickel	0.01	0.01	-
Sulfuric Acid	0.35	0.35	-
Zinc	0.15	0.18	+ 0.03
Total	2.16	1.14	- 1.02

Regulatory Analysis

This permit was reviewed for compliance with the Louisiana Part 70 operating permit program, Louisiana Air Quality Regulations, New Source Performance Standards (NSPS), and NESHAP. Prevention of Significant Deterioration does not apply.

Calumet Shreveport Refinery
Calumet Shreveport Lubricants and Waxes, LLC
Shreveport, Caddo Parish, Louisiana
Agency Interest Number: 1214
Activity Number: PER20060004
Draft Permit 0500-00005-V1

Louisiana Air Quality Regulations and NSPS

The applicability of the appropriate regulations is straightforward and provided in the Facility Specific Requirements Section of the draft permit, or Table 2 of the Air Permit Briefing Sheet. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are provided in the Facility Specific Requirements Section of the draft permit, or explained in Table 2 of the Air Permit Briefing Sheet.

Prevention of Significant Deterioration Applicability

It was determined that SO_2, NO_x, CO, and VOC for this project resulted in a significant increase, which required further analysis. Netting of contemporaneous emissions was conducted for SO_2, NO_x, CO, and VOC. The netting analysis resulted in the determination that the net emissions increase for SO_2, NO_x, CO, and VOC for the 2006 Expansion Project is not significant and no further PSD analysis or review is required.

	Sulfur Dioxides	Nitrogen Oxides	Carbon Monoxide	Volatile Organic Compounds
Project Increase (TPY)*	32.95	43.53	103.34	-3.87
Net Change for Contemporaneous Period (tpy)	31.8	23.6	61.1	19.6
PSD Significant Emission Rates (tpy)	40	40	100	40

* The project increase was based on the difference between actual (average of 1988 and 1999) to potential and the effect of modification on associated 2006 expansion project.

MACT Requirements

The Shreveport Refinery is a major source of toxic air pollutants. The facility is in compliance with the Refinery MACT I standards. Air Toxics Compliance Plan was approved on July 5, 1995.

Air Modeling Analysis

Impact on air quality from the emissions of the proposed facility will be below the National Ambient Air Quality Standards (NAAQS) and the Louisiana Ambient Air Standards (AAS) beyond industrial property.

Calumet Shreveport Refinery
Calumet Shreveport Lubricants and Waxes, LLC
Shreveport, Caddo Parish, Louisiana
Agency Interest Number: 1214
Activity Number: PER20060004
Draft Permit 0500-00005-V1

General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to Section VIII of the draft Part 70 permit.

Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to Section IX of the draft Part 70 permit.

IV. Permit Shields

A permit shield was not requested.

V. Periodic Monitoring

N/A

VI. Applicability and Exemptions of Selected Subject Items[1]

ID No:	Requirement	Notes
N/A		

[1] This table will be finished with other complex applicability determinations or exemptions.

Calumet Shreveport Refinery
Calumet Shreveport Lubricants and Waxes, LLC
Shreveport, Caddo Parish, Louisiana
Agency Interest Number: 1214
Activity Number: PER20060004
Draft Permit 0500-00005-V1

VII. Streamlined Requirements

Unit or Plant Site	Programs Being Streamlined	Stream Applicability	Overall Most Stringent Program
Shreveport Refinery	Louisiana MACT Determination for Refineries*	≥ 5% VOTAP	Louisiana MACT Determination for Refineries*
	40 CFR 63 Subpart CC-Refinery MACT Modified HON Option	≥ 5% VOHAP	
	40 CFR 61 Subparts J and V (LAC 33:III.5133 and 5171)-NESHAP for Equipment Leaks of Benzene	≥ 10% VHAP (Benzene)	
	40 CFR 60 Subparts VV and GGG (LAC 33:III.3730-3749 and 4780-4783)-NSPS for Equipment Leaks of VOC in SOCMI or Refineries	≥ 10% VOC	
	LAC 33:III.2121-Louisiana Fugitive Emission Control for Specified Parishes	≥ 10% VOC	
	LAC 33:III.5109 – Louisiana MACT Determination for Non-HON Sources	≥ 5% VOTAP	

Calumet Shreveport Refinery
Calumet Shreveport Lubricants and Waxes, LLC
Shreveport, Caddo Parish, Louisiana
Agency Interest Number: 1214
Activity Number: PER20060004
Draft Permit 0500-00005-V1

VIII. Glossary

Best Available Control Technologies (BACT) - An emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under this part which would be emitted from any proposed major stationary source or major modification which the administrative authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

Carbon Monoxide (CO) – A colorless, odorless gas which is an oxide of carbon.

Grandfathered Status- Those facilities that were under actual construction or operation as of June 19, 1969, the signature date of the original Clean Air Act. These facilities are not required to obtain a permit. Facilities that are subject to Part 70 (Title V) requirements lose grandfathered status and must apply for a permit.

Hydrogen Disulfide (H_2S) - A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the action of acids on metallic sulfides, and is an important chemical reagent.

Maximum Achievable Control Technology (MACT) - The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

New Source Review (NSR) - A preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C ("Prevention of Significant Deterioration of Air Quality") and D ("Nonattainment New Source Review").

Nitrogen Oxides (NO_x) - Compounds whose molecules consists of nitrogen and oxygen.

National Emission Standards for Hazardous Air Pollutants (NESHAP) – Toxic air emission standards for specific types of facilities, as outlined in 40 CFR Parts 61 through 63.

Nonattainment New Source Review (NNSR) - A New Source Review permitting program for major sources in geographic areas that do not meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. Nonattainment NSR is designed to ensure that emissions associated with new or modified sources will be regulated with the goal of improving ambient air quality.

Organic Compound - Any compound of carbon and another element. Examples: Methane (CH_4), Ethane (C_2H_6), Carbon Disulfide (CS_2)

Part 70 Operating Permit- Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: ≥10 tons per year of any toxic air pollutant; ≥25 tons of total toxic air pollutants; and ≥100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM_{10}- Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) - The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Synthetic Organic Chemical Manufacturing Industry (SOCMI) – any facility that is subject to 40 CFR part 60, subpart III, NNN, or RRR or the Hazardous Organic NESHAP (HON); or a facility that would have been subject to subpart III, NNN, or RRR had construction of the regulated source commenced after the applicability date of one of these rules.

Sulfur Dioxide (SO_2) – An oxide of sulphur.

Title V permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) - Any organic compound which participates in atmospheric photochemical reactions; that is, any organic compound other than those which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.